

Appl. No. : [REDACTED] known
Filed : [REDACTED] crewith

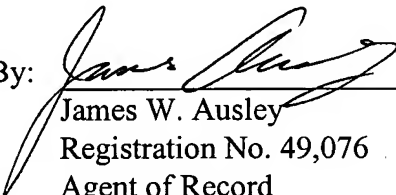
Attached hereto is a marked-up version of the changes made to the application by the current amendment captioned "**Version with Markings to Show Changes Made**"; additions are shown as underlined and deletions are shown [bracketed].

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 2/18/02

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Version with Markings to Show Changes Made

IN THE ABSTRACT:

The Abstract has been amended as follows:

[Mechanism] A mechanism for exchanging chip-carrier plates[, in particular for use] in a hybrid chip-bonding machine [(1), with:] having a plurality of chip-carrier plates [(12)], a magazine [(10)] to store the plurality of chip-carrier plates [(12)], and a transport arrangement [(40) comprising] having a first and second clamping device [(42, 44)] that are disposed on a movable holder [(46), such that] is disclosed. The [the] transport arrangement is designed to remove a selected chip-carrier plate from the magazine[,] and deliver it to a chip processing station[,]. After processing, the selected chip-carrier plate is removed and deposited in the magazine. Movement of [in particular a chip-detaching system (8), of the chip-bonding machine, and after processing remove it from the processing station and deposit it in the magazine, a control means to move] the chip-carrier plates [within the magazine in such a way] is controlled such that the selected chip-carrier plate is positioned at a collection point to be collected from the magazine[,]. Movement of the transport arrangement holder is controlled such that [and a control means to move the holder of the transport arrangement, wherein] the first and second clamping devices [(42, 44)] are disposed [one above the other, in particular] in a vertical arrangement[,] on the holder [(46)] and are constructed [so that each can] to individually release or grip a chip-carrier plate in [one and the same] a similar angular position of the holder.

[(Fig. 1)]

IN THE SPECIFICATION:

Page 1, immediately after the title, please insert:

Related Applications

This application claims the benefit of the European application 01 126 708.5 filed November 8, 2001.

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Please amend the paragraph beginning on page 1, line 11, as follows:

[DESCRIPTION]

Background of the Invention

Field of the Invention

The invention relates to a mechanism for exchanging chip-carrier plates in a hybrid chip-bonding machine, in particular to an automatic hybrid chip-bonding machine[, according to the precharacterizing clause of Claim 1].

Description of the Related Art

Please amend the paragraph beginning on page 3, line 16, as follows:

Summary of the Invention

It is the objective of the present invention to disclose an improved mechanism for exchanging chip-carrier plates as well as a method of operating such a mechanism, with which still greater operating efficiency can be attained, and hence lower production costs for chip bonding.

Please amend the paragraph beginning on page 5, line 26, as follows:

Brief Description of the Drawings

A preferred embodiment of a chip-carrier-plate system in accordance with the invention is described in greater detail in the following, with reference to the attached drawings, wherein

Fig. 1 shows a schematic overall view of the [most important] components of an automatic hybrid chip-bonding machine;

Please amend the paragraph beginning on page 6, line 1, as follows:

Detailed Description of the Preferred Embodiment

Fig. 1 shows the principles of construction of an automatic hybrid chip-bonding machine 1, which comprises on one hand an epoxy die bonder 2 and on the other hand a die collet system 4 for chip assembly, which are the actual processing stations. The chip-bonding machine 1

further comprises a chip-delivery system 6 and a chip-detaching system 8. The chip-delivery system 6 includes a magazine 10 to contain a plurality of chip-carrier plates as well as the actual delivery mechanism, which is the object of the invention. Chip-bonding machines of this kind have long been known, so that their construction and the interaction of the main components need not be described further here.

IN THE CLAIMS:

The claims have been amended as follows:

WHAT IS CLAIMED IS:

1. (Amended) A mechanism [Mechanism] for exchanging chip-carrier plates, [in particular] for use in a hybrid chip-bonding machine [(1), with] having a chip-detaching system and a common base element, the mechanism comprising:

- [-] a plurality of chip-carrier plates [(12),];
- [-] a magazine [(10)] to store the plurality of chip-carrier plates [(12),];
- [-] a transport arrangement [(40) comprising] having a first and a second clamping device [(42, 44)] that are disposed on a movable holder [(46),] in a manner such that the transport arrangement is designed to remove a selected chip-carrier plate from the magazine, deliver [it] the selected chip-carrier plate to a processing station[, in particular a] of the chip-detaching system [(8), of the chip-bonding machine], and after processing remove [it] the selected chip-carrier plate from the processing station and deposit [it] the selected chip-carrier plate in the magazine[,];
- [-] a [control means] first controller configured to move the chip-carrier plates within the magazine in a manner such [a way] that the selected chip-carrier plate is positioned at a collection point to be collected from the magazine[,]; and
- [-] a [control means] second controller configured to move the movable holder of the transport arrangement wherein, [characterized in that] the first and second clamping devices [(42, 44)] are disposed one above the other[, in particular] in a vertical arrangement[, on the holder [(46)] and are constructed so that each can individually release or grip a chip-carrier plate on one and the same angular position of the holder.

2. (Amended) The mechanism of Claim 1, wherein the [Mechanism for exchanging chip-carrier plates according to Claim 1,

characterized in that each of the] first and second clamping devices [(42, 44)] comprise[s] a receiving element [(48)] with a pneumatically or electrically actuated clamp [(50, 52)] for the controllable fixation of a chip-carrier plate [(12)] or the release thereof.

3. (Amended) The mechanism of Claim 1, wherein [Mechanism for exchanging chip-carrier plates according to Claim 1,

characterized in that] the chip-carrier plates [(12)] are constructed as plates [(12.1)] with a substantially square outer shape and engagement [means, in particular] bores [(12.6, 12.7),] to engage the clamping devices of the transport arrangement as well as a holding [means] device of the chip-detaching system.

4. (Amended) The mechanism of Claim 1, wherein [Mechanism for exchanging chip-carrier plates according to claim 1,

characterized in that] the chip-carrier plates [(12)] are designed to receive [all] conventional chip carriers[, in particular of the] selected from the group consisting of a type of the waffle pack, gel pack [or] and carrier-film frame.

5. (Amended) The mechanism of Claim 1, wherein [Mechanism for exchanging chip-carrier plates according to claim 1,

characterized in that] the first and second clamping devices [(43, 44)] are attached to a common base element [(54)] that can be displaced vertically with respect to a housing [(56)] of the transport arrangement [(40)].

6. (Amended) A method [Method] of operating [the] a mechanism for exchanging chip-carrier plates in a hybrid chip-bonding machine, wherein, [in particular according to one of the preceding claims, characterized in that] when a transport arrangement of [the] an exchanging mechanism is in a first working position, [a step in which] comprising the steps of:

removing a selected chip-carrier plate [is removed] from a magazine [is] immediately followed by a step of [in which]

depositing another chip-carrier plate, which has been taken out of a processing station, [is deposited] in [the] a magazine, and when the transport arrangement is in [another] a second working position,

[a step in which] transferring the chip-carrier plates taken from the magazine [are transferred] into the processing station,

[as well as a step in which] removing the processed chip-carrier plate [is removed] from the processing station, [are carried out in this or the reverse order,] such that each transport event from the magazine to the processing station and in the reverse direction is carried out while a chip-carrier plate is being handled in the processing station.

7. (Amended) The method of [Method according to] Claim 6, wherein delivering the [characterized in that each transport event serves both to deliver a] selected chip-carrier plate to the processing station [and to return] further includes the step of returning a chip-carrier plate from the processing station to the magazine.

8. (Amended) The method of [Method according to] Claim 6, wherein [characterized in that] the transport arrangement moves only in a straight line in both directions between the first and second working positions.